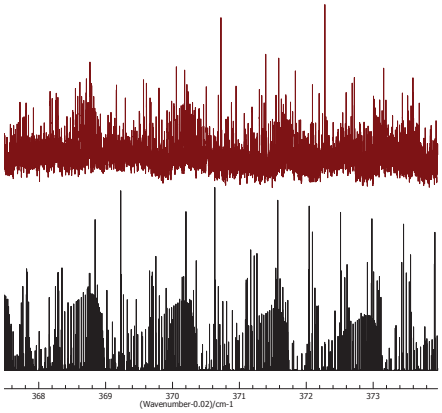
FIRST HIGH RESOLUTION INFRARED SPECTRA of 1-D_1-PROPANE. FIRST ANALYSIS OF THE ν_9 A_1 TYPE B BAND NEAR 358 cm^{-1}

STEPHEN J. DAUNT, ROBERT GRZYWACZ, *Department of Physics & Astronomy, The University of Tennessee-Knoxville, Knoxville, TN, USA*; COLIN WESTERN, *School of Chemistry, University of Bristol, Bristol, United Kingdom*; WALTER LAFFERTY, *Optical Technology Division, National Institute of Standards and Technology, Gaithersburg, MD, USA*; JEAN-MARIE FLAUD, *LISA, CNRS, Universités Paris Est Créteil et Paris Diderot, Créteil, France*; RICHARD HUTCHINGS, *Berry & Associates/ICON Isotopes, Dexter, MI, USA*; BRANT E. BILLINGHURST, *EFD, Canadian Light Source Inc., Saskatoon, Saskatchewan, Canada*.



At the last two ISMS meetings we have reported on our IR studies of various D and ^{13}C substituted isotopologues of propane conducted at the Canadian Light Source synchrotron (2-^{13}C, 1-^{13}C, 2,2-D_2, 2-D_1). This year we are reporting on the study of the ν_9 B-type band of 1-D_1-Propane. There are only two reports of the IR spectra of this molecule both published in 1949. Neither of these studies could reach the far-IR where this band occurs. We will show the complete high resolution survey of all regions from 4000 to below 300 cm^{-1}. This will help to confirm some of the earlier assignments for this molecule. We hope to report the first modern experimental determination of the ground state constants since the 1960 MW study of Lide. This new work now includes the centrifugal distortion terms for the ground state as well as constants for the ν_9 state.